# *Self Guided Tour of Hoover Dam's Architecture, Art and Design*

Expect to spend an hour walking and looking at the many features of the top of Hoover Dam. This tour works best if one person acts as tour guide and reads each description.

Take turns being your party's official "Dam Guide."

The various features found across the top of the dam do not present themselves in any logical pattern; consequently this Self Guided tour will be somewhat disjointed. Every attempt is made to cross-reference these features.

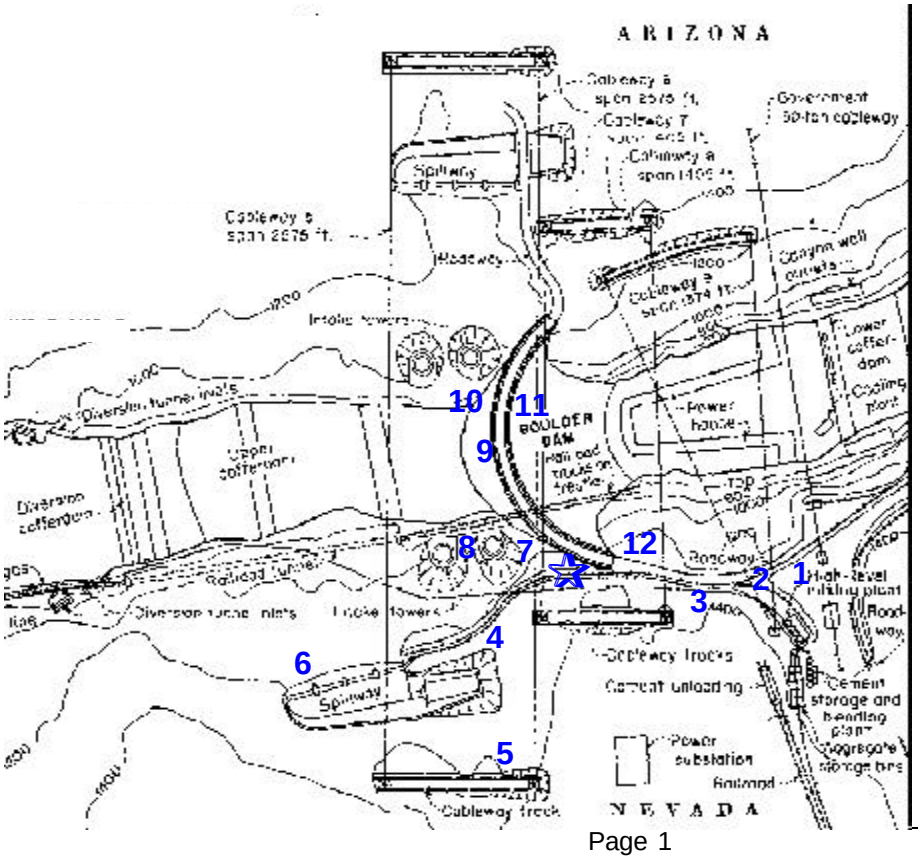
This self-guided tour starts on the third floor of the Visitor Center Parking Garage. Try to get to the corner furthest from the dam, but closest to the road. Follow along with this handy diagram.

## 1. Cableway Crane

In front of you is a large metal tower with six cables stretching across the canyon. Hoover Dam has the world's largest, and oldest operating Cableway Crane system. This is the main head tower.

The crane traverses 1200 feet across the canyon and it is capable of lowering 150-ton loads 700 feet into Black Canyon. This crane was primarily used to install the large penstocks (water pipe) that carry water from the lake to the generators. The operator for the crane does not sit in the tower, however, but in the small operator's booth located across the road. Note: Although the view from the crane-operating booth is wonderful, it is off-limits to the public.

From the third floor of the Parking Garage, you should find your way down to the road level itself, and start walking toward the tour center.




## Escalators

As you approach the escalators, keeping the row of palm trees on your left, take a moment to stand at the rock wall closest to the canyon edge. (Note to acrophobes: Black Canyon is quite deep and the views into the canyon bottom can be somewhat disconcerting.)

## 2. Retaining wall

The first thing you should note is the rock wall along the edge of the canyon. This type of construction is called "Rubble Masonry." Civil engineers used it extensively

around the dam during the original construction. This particular wall, however, was built in the early 90's with the new Visitors' Center. This tour will pass many of these rubble masonry walls.

If you look carefully at the arrangement of the rocks, the thickness of the concrete between the rocks, and the quality of the work, you can generally tell the new walls from the originals (constructed in 1932-35). It is even possible to see differences between individual work crews, which included a group of Czechoslovakian craftsmen, and (later) some Civilian Conservation Corps groups from the New Deal.

Looking over the wall, into the canyon, you should notice a rock retaining wall sloping into the canyon. This retaining wall was installed in 1932-33 during the construction of the dam.

## Antelope Ground Squirrels

On most days, you can see small mammals scampering around the rocks.

These are Antelope Ground Squirrels, they are not "chipmunks." Around here we like to call them "hawk food" or "snake food." We don't recommend feeding them, although they don't seem to mind. Remember that if we feed them, they become fat and lazy…easy pickings for the hawks and snakes.

## Cactus Garden

When you've had your fill of looking into the canyon, walk to the top of the escalators, but don't go down them. That is for people interested in taking the guided tour through the dam and powerplant.

Instead, take a moment and appreciate the cactus garden. The film crew shooting the Chevy Chase movie, National Lampoon's *Vegas Vacation*, provided this area . They felt the front entrance needed to look more "desert-like." However, since the Mojave Desert (which encompasses Hoover Dam, Las Vegas, and most of south-eastern California) doesn't have this type of cactus, they look a little out of place. But they are nice nevertheless. If you're visiting in the Spring, you might be treated to the sight of the lovely fuscia cactus flowers.

## Mascot's Grave

From the cactus garden, walk toward the canyon wall where you will find the tomb of the dam's mascot. A little black puppy, found under the front porch of one of the dam's workers, became the mascot for the whole construction site. The dog met his untimely death in 1941 when a truck he was sleeping under rolled over him. All work was halted on that day, and a tomb was erected over the site.

## 3. Safety Island

The next stop on this tour is the "Safety Island" (which should be directly in front of you as you face the lake) with two large winged statues and the flag of our country.

As you approach the "island," ascend three steps or the long, silver ramp. At the top of the steps, set into the diorite floor of the monument, is a lengthy inscription by Oskar Hansen (1882-1971). Since Mr. Hansen's death, as the legend goes, there are only two men alive today who understand this inscription. The artist's words are as difficult to see as they are to understand. Nevertheless, the meaning is quite simple: Before you, set into the terrazzo floor of the monument, are over 200 brass discs; they represent the brightest stars visible from this point; the larger the disk, the brighter the star. This is how the sky looked on September 30, 1935; the day President Roosevelt dedicated the dam. If some future archeologist couldn't read the inscription date, they could calculate (assuming they *did* understand astronomical mathematics) the date…to the fraction of the second.

Look for familiar constellations, or any planets that might have been visible. Where was the moon? What phase?

## Winged Statues

Oskar Hansen's magnificent sculpture is viewed as a symbol of modern man's creation of Hoover Dam much as the viewer perceives the pyramids of Egypt, the Parthenon of classical Greece and the Coliseum of Imperial Rome. The winged-figures are among the largest monumental bronzes ever cast in the United States, containing more than four tons of statuary bronze.

But what do they mean?

According to the sculptor, the statues express "the immutable calm of intellectual resolution, and the enormous power of trained physical strength, equally enthroned in placid triumph of scientific accomplishment." To put this in simpler terms, the statues represent man's ability to build something as spectacular as Hoover Dam.

The sculptor often referred to his work as "The Winged Figures of the Republic," and he said that the "expressions of a human body close around the core of a person's inner balance like a finely tailored garment."

As a visitor studies the sculptures, perhaps he can see the fine characteristics of the heads. Some of Hansen's writing explained that as our country was settled the American type of man developed. He [the American type of man] was quick witted. He was shaped by privations and the strong winds of the mountains and of the plains into a facial characteristic with the look of eagles. Mr. Hansen wanted the heads to be finely shaped, high and domelike of forehead and lean of cheeks in emulation of what he felt to be the American type. The eyes were meant to show the mental fire, daring and imagination, which crackle like burning coals within. The heads contain a largeness of spirit, a willingness to assume risks for an ideal.

The figures were created nude but were modeled so that they would not seem *naked*. The viewers should see them as "mighty of body and clean of soul," armed only in the winged imagination of their own thoughts.

According to rumor, if you rub their toes, it'll bring good luck in Las Vegas.

After you've explored the star map, wander to the center of the monument, directly beneath the flagpole. Place your back against the black stone of the base of the flagpole; in front of you, on the floor is a yellow semi-circle. It's not actually a semi-circle, it continues 360 degrees around the pole.

This circle represents a clock – the Wheel of Time.

Start on your right, where the wheel intersects the black diorite of the monument. That intersection depicts the beginning of recorded history.

With your eyes, follow the circle – counter-clockwise – from right to left in front of you.

Look for when the Pyramids were built (about 1:30) …and the birth of Christ (about 11:00).

At about 9:30, look for the mark indicating September 30th, 1935.

Using these three marks as a gauge, where on the wheel would we find your birthday? World War II? The day people first walked on the moon? The beginning of the 21st Century?

## Inscription

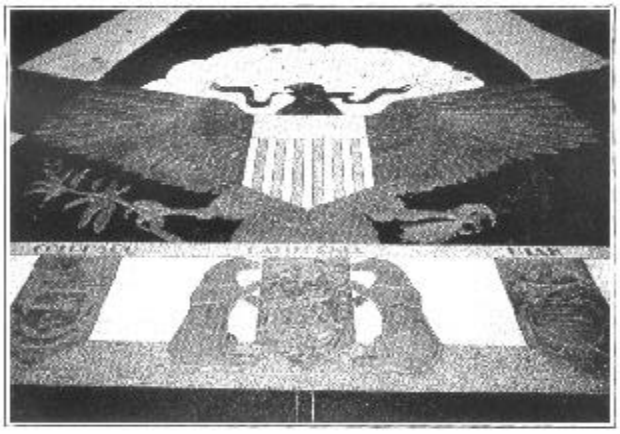
From the sidewalk by the street, the visitor can view the monument in all its glory.

The inscription at the base of the flagpole offers silent testimonial to the efforts necessary to build this engineering wonder we call Hoover Dam.

**"It is fitting that the flag of our country should fly here in honor of those men who, inspired by a vision of lonely lands made fruitful, conceived this great work and of those others whose genius and labor made that vision a reality."**

## Floor design

Oskar Hansen believed in the importance of appropriate symbolism. He tried to reflect his symbolism when he designed this memorial.



In the center of the floor is, of course, the great American Bald Eagle, with its appropriate attributes:

The Bald Eagle representing the United States.

Thirteen arrows in the eagle's left claw, and thirteen leaves and berries in the olive branch in the right – for the thirteen original colonies.

Thirteen five-pointed stars above the eagle's head, again, for the colonies.

Forty-eight feathers in each wing, for the forty-eight states in the union (in 1935).

The official plaques and mottoes from the seven states the Colorado River drains forms a base for the eagle to perch upon.

Other details may – or may not – mean something. What about the arcs forming the arch over the eagle's head? Some feel this is just a stylized representation of clouds, but others feel Oskar Hansen wouldn't miss such an opportunity to include just one more piece to his story.

And what about the triangles pointing away to the left and the right of the eagle? They don't seem to point to anything specific, but it seems like a frivolous addition to his work. What could they mean?

## Horoscope and Compass

And speaking of symbols, to the right of the flagpole (upstream) visitors can find a large marble compass – indicating magnetic north — surrounded by the Twelve Signs of the Zodiac.

What possible connection could Hansen find between these signs, a compass, and a large concrete engineering project?

Which direction is *your* zodiac sign?

## Dedication plaques

Further to the right and against the cliff face, are five brass dedication plaques, listing a few of Hoover Dam's honors.

The large plaque in the middle, also sculpted by Hansen, honors the men killed during the construction of the dam. "They died to make the desert bloom."

Many representations of water's uses adorn the arch above the man's outstretched arms.

Notice the face in the lower left corner of the sculpture. If you look closely, it appears as if the main figure is standing on someone in the water, holding him under. Hansen's writings make no mention of this second man. No one knows what he represents.

## ✯ Road to NV Spillway

At this point in the tour, we come to a fork in the route. You have a choice of continuing to the left, past the Old Exhibit Building, or veer to the right, across the top of the dam.

To the left is a longer tour, but the best chance to see wildlife -- continue on to the next section. To the right is quicker and shorter -- go to ✯Upstream Dam Walk, page 8.

## Old Exhibit Building

This building's history is as confusing as Hansen's memorial. Although originally constructed in 1937 to house public exhibits, the US Army commandeered it as a headquarters after December 7th, 1941. At that time, all tours of the dam were suspended and traffic over the dam required an army escort. After the war, installation of exhibits continued. Even today, the various displays are changed and updated. We recommend the visitor stop by to see the presentations and exhibits.

One thing that may not be immediately obvious is the unusual material chosen for the interior walls. This rock – known as travertine – forms within limestone caves by the same process that forms stalactites and stalagmites; requiring millions of years of accumulation to form.

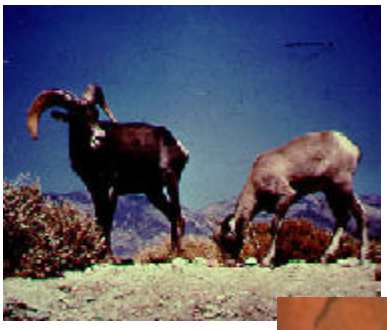
## Flora and Fauna

Continuing past the Old Exhibit Building, work your way beyond the Snackateria toward the Nevada Spillway.

As you walk, be aware of your surroundings. Watch for more Antelope Ground Squirrels.

Other wildlife you might see along the way:

**CanyonWren**



**Desert Bighorn Sheep**

**Common Raven**

**Double Crested Comorant**

**Sparrow**

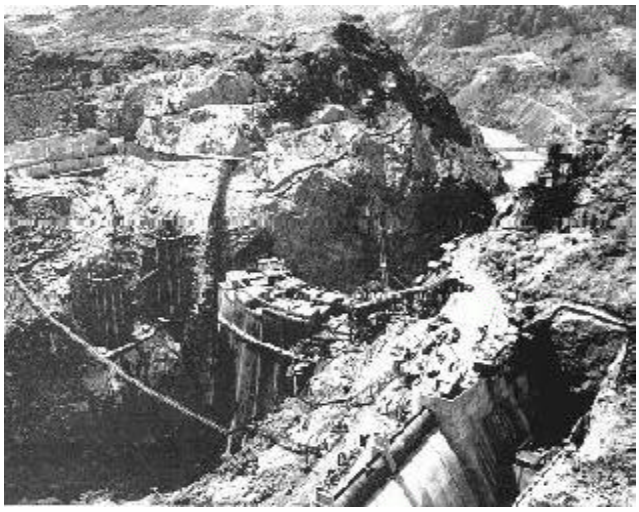
Of course, if all this wildlife lives here, there *must* be something for them to eat! Tucked into the crags and cracks of the rock faces you'll find many plants.

**Creosote Bush**

**Brittlebush**

## 4. NV Spillway Parking Lot

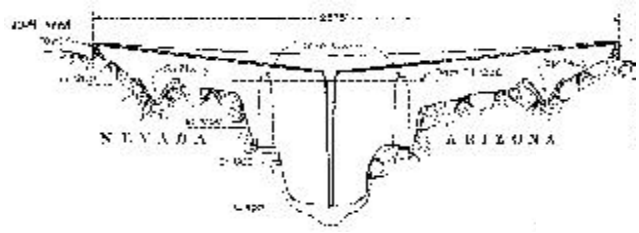
Walking out to the Nevada Spillway affords many opportunities to see parts of the dam that aren't normally visited by tourists.



## 5. Cableway Crane landing

On the canyon wall opposite the lake are several "shelves" cut into the cliff face. Many of these "shelves" look like mine tailings or road cuts. These areas actually held and anchored mobile head-towers used in a cableway/gantry crane system similar to the one at the beginning of the tour. These mobile cranes were instrumental in concrete placement for the dam, spillways, and the intake towers.

This cross-section makes it a little easier to understand the placement of these cranes.




## 6. Nevada Spillway

Once you reach the end of the parking lot, you should be overlooking the Nevada Spillway. This system (along with a similar one on the Arizona side) protects the dam in case of extreme flood conditions.

The spillway works just like the overflow on a bathtub. The top edge of the spillway is 27 feet *below* the top of the dam. If the lake gets too full, *instead* of going over the top of the dam (*that would be* very *bad*), the water flows over the top of the spillway.

## Spillway function

Notice that the edge of the spillway has four metal gates that may be up or down. They are usually down, but if they're up, take a picture!

The way the system works is as follows:

As the lake level rises, float valves within the towers of the spillway raise the gates to match the water. This increases the potential elevation of the lake by 16 feet.

If the lake continues to rise, the water flows over the top of the gates.

This has happened only twice…the first time was 1941, when the lake first filled, they overfilled it to test the spillways.

The second time was in 1983, when Mother Nature tested them. The lake overfilled by 20 feet and 4.5 feet of water flowed over the top of the gates for 66 days until the lake reached normal levels. This was called a "500 Year Flood".

*If* the water continues to rise, and gets 7 feet over the gates, the lake is in imminent danger of cresting the dam. At that level, the pressure from the water will be enough to push those gates down, so instead of a 7-foot spill, we'll have a 23-foot spill (16+7).

The spillways are designed to handle 200,000 cubic feet of water per second (CFS) for a total of 400,000 CFS. During the 1983 flood, the spillways only moved about 28,000 CFS, or less than 5% of their total capacity.

Walk back toward the dam. Take the time to notice the rubble masonry walls on your left (closest to the lake). You should notice the difference between this wall and the one at the beginning of the tour. *These* walls were constructed in 1932 whereas the first wall is fairly new, having been completed in 1995. Also, notice the difference between the rubble masonry walls before and after the "Snackateria." This is a good example between two different work crews, both working in the '30's.

## ✯ Upstream Dam walk

When you reach the dam, walk on the *upstream* side of the street. The return walk will bring us back on the other side.

As you walk across the dam, notice the architecture of the overall construction. What other buildings does the overall look of the dam remind you of? Perhaps the specific decorations remind you of other municipal buildings built in the late 20's or early 30's.

Many structures built during that time reflected the Art Deco movement popularized by John Savage. Some examples include the Empire State and the Chrysler Buildings of New York City, or the Deco District of Miami Beach. Typical Art Deco designs include windswept or aerodynamic curves, no sharp angles. At the beginning of the Twentieth Century, many felt Deco was the look of the future.

Notice these architectural features on the dam (light fixtures, hand rails, etc.) and adjoining structures. Look for rounded corners or horizontal features that add to the overall *look* and *feel* of the design.

## 7. Intake Towers and bridges

Continue walking across the dam with the lake to your left.

The two towers to your left are the Nevada Intakes. Standing on notches cut into the canyon wall, they tower 395 feet (120m). Of course, today we can only see their tops, but this gives a good indication of the depth of Lake Mead.

The inlets to these towers are located at 250ft (76m) and 350ft (107m) below the top, so we're drawing water from the middle and bottom of the lake.

Why would we draw water from that deep?

There are two reasons:

1. With the inlets at the bottom, water could be released through the powerplant (thus making electricity) long before the lake filled completely.

2. That deep, oxygen levels are low enough that fish don't swim down there. That way no animals swim through the dam.

Notice also the Art Deco design of these twelve-sided towers.

The bridges between the towers and the dam serve as access and to stabilize the towers.

## 8. NV Elevator Tower Base Relief

When you reach where the road (bridge) goes to the Nevada Upstream Intake Tower, stop and look downstream (away from the lake).

Across the top of the dam, there are four large square towers (do not confuse these with the rounder Intake Towers in the lake). You should be directly upstream from the second. This is the Nevada Tour Elevator. Later on, we'll talk about the tour history here at Hoover Dam, but for now, look *above* the concrete roof over the entrance door.

You'll see a Base Relief sculpture depicting the main five reasons for building Hoover Dam.

Flood Control
Navigation
Irrigation
Water Storage
Power

You'll notice Power is last, and the first four have to do with water. When designing the dam, the engineers sought to provide these resources *before* the power.

The sculptor is again our very own Oskar Hansen, and again, he applies his vision of the "pioneer spirit" to his subjects.

The beveled and stepped edges of the towers are excellent examples of Art Deco.

## 9. Upstream Center of Dam

Continue walking toward the Arizona side of the dam, but stop in the center.

There are two ways to know if you're at the center: either by judging the distance between the two sets of intake towers, or, by looking for the brass plaque listing Hoover Dam as an "Engineering Monument."

In 1985, the dam was honored as one of the "most important civil engineering projects" in America. We were also recognized as the largest example of Art Deco Architecture in the world. This plaque is mounted here in recognition of these honors.

The plaque also shows the border between Nevada and Arizona. As you cross into Arizona, you are also crossing into the Mountain Time Zone (from the Pacific Time Zone). Depending on what part of the year you're visiting the dam, there may be an hour difference between the two sides. (*During the summer months, Nevada goes on* Daylight Savings Time *whereas Arizona stays on* Standard Time.)

Standing in the center of the dam and looking up on the Arizona cliffs to your right, you should see an old stone building. This is a machine gun bunker from WWII. At one time there were four – two on each side of the dam

## 10. Upstream Dam walk

Continuing along the top of the dam, going further into Arizona, you come to the Arizona set of Intake Towers.

A few dozen more paces along the dam brings you opposite the Arizona Dam Elevator Tower. Before you cross the street (remember to use the crosswalk), take a moment to look at the Base Relief (also from Oskar Hansen) above the Arizona Elevator.

## Downstream Dam walk

This is a good place to cross the street to the downstream side of the dam. Please use a crosswalk and watch for traffic.

## 11. AZ Dam elevators

On the Arizona dam elevator, to either side of the brass doors are large plaques providing important or interesting information about the dam's political and engineering history.

Who was Secretary of the Interior during the construction of the dam? Who was President?

Look also for Dr. Elwood Mead's dedication to find out his role in Hoover Dam's history and why the lake is named after him.

As you walk back toward Nevada and the Visitor Center, take some time to appreciate the magnificent downstream view of Black Canyon and Hoover Dam. As you look downstream, imagine a similar view *upstream* (where the lake now stands) and you'll start to get an impression of what the pioneering engineers had to contend with before they started construction.

The metal rail you're following used to be the queue line for visitors wanting to tour the dam and facilities. Imagine standing next to all this traffic, in 100+ degree heat waiting to take a tour. Until June of 1995, over 31 million visitors opted to do just that.

Now you can begin to see why we built a new visitor center.

When you reach the Nevada dam elevator tower, stop a moment and look at these brass plaques, too. They provide even more interesting and important information about the project.

Finish your walk back to the main (new) visitor center and enjoy a tour through the powerplant and the available exhibits. Don't forget to go up to the observation roof (OR Level) for the most spectacular view of the downstream face of the dam available.

## 12. Hoover Dam Visitors's Center

This booklet is written and presented by
Ken Forman
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